IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Inventors: ..... Parupudi, et al.
Appellant: ..... Microsoft Corporation
Group Art Unit: 2173
Examiner: ..... N. Pillai
Confirmation No.: 3998
Attorney's Docket No.: MS1-696US
Title: Environment-Interactive Context-Aware Devices and Methods

APPEAL BRIEF

To: Mail Stop Appeal Brief - Patent
Commissioner for Patents
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From: David S. Lee
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Sir:

In response to the Final Office Action of January 28, 2004 in connection with the above-identified application, and further to the Notice of Appeal filed on April 28, 2004, an Appeal is made. Favorable consideration is respectfully requested.

REAL PARTY IN INTEREST

The real party part in interest in the present matter is the Microsoft Corporation of Redmond, WA, USA.

RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences known to the Appellant or the Appellant's undersigned representative that would directly affect, or be directly affected by, the outcome of the present Appeal.

STATUS OF CLAIMS

The Final Office Action of January 28, 2004, states that Claims 2-7, 9-30, 32-39, 41-46, and 48 are rejected. This Appeal is made to the rejection of the aforementioned rejected claims.

STATUS OF AMENDMENTS

Subsequent to the Final Office Action of January 28, 2004, the Appellant filed a Notice of Appeal in the U.S. Patent and Trademark Office on April 28, 2004.

SUMMARY OF THE INVENTION

The present invention relates to methods, devices, and systems that are implemented for dynamically determining the location of a portable computing device.

A non-limiting summary of the invention is presented with reference to FIG. 12, described on page 51, line 1 through page 52, line 17, of the application. This Summary, however, does not limit the scope of the pending claims in any manner.

FIG. 12 shows a system 1200 that employs environment-interactive, context aware devices such as devices 1202, 1204, 1206, and 1208. The example devices are "environment-interactive" in that they may interact with their location environment in a manner that is specific to the location of the respective devices. In the example of FIG. 12, three different locations are shown at 1210, 1212, and 1214, and one or more servers 1216, 1218, which may be provided, may be wirelessly accessible via a network such as the Internet. The servers can provide access to a store of digital data that can be used by the computing devices 1202, 1204, 1206, and 1208 to interact in a meaningful way with their current environment.

At location 1210, device 1202 is communicatively linked with a location beacon, and based on the information that is received from the location beacon, device 1212 is able to determine its respective location or context. Additionally, the location beacon may provide digital data to the device that permits it to interact with the location environment. This digital data can comprise any suitable digital data, *e.g.*, digital data that is used to render Web pages, code download pointers that are used to locate and download software code, or the software code itself in the form of applications or applets. Alternately, the digital data that is used by the devices 1202, 1204, 1206, and 1208 can be accessed via the network or Internet from, for example, one of the servers.

The example of FIG. 12 further shows device 1206 linked, *e.g.*, via Bluetooth, to device 1204 from which device 1206 ascertains its respective location. Once device 1206 ascertains its respective location, device 1206 may acquire digital data, such as the digital data that is described above, in order for device 1206 to interact with its environment. Device 1208 may be communicatively linked with a cell tower to receive its respective location information in this manner. As with device 1206, device 1208 can then use this information to acquire digital data that it then uses to interact with its respective local environment.

ISSUE

The outstanding issues for appeal include:

1. The rejection of Claims 2-7, 9-21, 23-30, 32-36, 38, 39, 41-46, and 48 under 35 U.S.C. §103(a) as being unpatentable over Dowling, et al. (U.S. Patent 6,522, 875; hereafter "Dowling") and Goldman (U.S. Patent 6,343,291; hereafter "Goldman").

2. The rejection of Claims 22 and 37 under 35 U.S.C. §103(a) as being unpatentable over Dowling and Goldman and further in view of "Computer Maintenance, Part 1 First Step: Spring Cleaning" (hereafter "Fulton").

GROUPING OF CLAIMS

The Appellant submits that the claims under appeal do not stand or fall together. The rejection presented in the Final Office Action is addressed below as it pertains to the following groups of claims.

a. Claims 2-7 and 9-19;

b. Claims 20-30;

c. Claims 32-39;

d. Claims 41-46; and

e. Claim 48.

ARGUMENT

a. It is respectfully submitted that the references do not teach or suggest "hierarchical tree structures comprising multiple nodes that represent a physical or logical location," nor do the references teach or suggest determining a location of a device, much less using a hierarchical tree structure to do so, as presently claimed.

Further, it is submitted that the requirements for establishing a *prima facie* case of obviousness, set forth in MPEP §2143, have not all been met in the final rejection from which this appeal is made. The aforementioned requirements are provided below, and a description the respective deficiencies of the rejection, in accordance with the respective claims, follow.

MPEP §2143 states, in part:

> To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation

> of success must both be found in the prior art, and not based on Appellant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

The method recited in independent **Claim 2** comprises:

- determining a location of the portable computing device by accessing one or more hierarchical tree structures each of which comprising multiple nodes that represent physical or logical locations; and traversing at least one node on the one or more hierarchical tree structures to ascertain a device location;
- acquiring digital data associated with the determined location and that can permit the portable computing device to interact with a location environment; and
- interacting with the location environment based, at least in part, on the acquired digital data.

The final rejection of Claim 2 asserts that Dowling discloses the subject matter of the claim, except that "Dowling does not disclose that these databases are hierarchical tree structures, wherein nodes would be traversed to access the information concerning the device location..." (Office Action, page 2). The rejection then argues that Goldman discloses "creating and using an organized hierarchical structure with nodes representing location based information, wherein the tree would be traversed to access a specific node containing information that is needed." Thus, the rejection surmises that it would be obvious to incorporate Goldman's teaching in Dowling's system to render the claimed subject matter obvious since Dowling discloses using "some kind of database storage structure" (Office Action, page 3) and that Goldman teaches

taking a database and using a hierarchical structure to provide a better organized structure where information can be easily accessed.

The Appellant respectfully disagrees with the interpretation and application of the references set forth in the rejection, and further submits that the rejection fails to establish a *prima facie* case of obviousness. More specifically, it is respectfully submitted that the rejection does not provide adequate suggestion or motivation to modify the reference or to combine reference teachings, and, further, the references do not teach or suggest all of the claim features.

First, Goldman is concerned with providing a meaningful and easy way to access information in an information repository, *i.e.*, a database, that provides the detail of information available from a custom program without the time and expense of creating one, as well as the cost-effectiveness of querying an information repository without the uncertainties of results and the inefficiencies in obtaining them (Goldman, col. 2, lines 41-50). Thus, Goldman is directed to using an information model to create a hierarchy that allows a user to *see* two things. Specifically, the user can *see* how information in an information repository is organized and various information relationships, *e.g.*, relationships between data such as database fields and records in the database. Further, Goldman's database-derived hierarchy allows a user to *view* logical subsets of database records. Such usage and description of "hierarchy" is not even suggestive of "one or more hierarchical tree structures each of which comprising multiple nodes that represent physical or logical locations," as recited in Claim 2.

Secondly, Goldman fails to teach or suggest determining a "location" of a device, much less using a hierarchical tree structure to determine the location of such a device, as recited in Claim 2. Rather, Goldman is directed to systems and methods that process information associated with a database so that the information can be presented for viewing by a user using the device (Goldman, col. 1, lines 10-12). Thus, Goldman fails to teach or suggest "traversing at least one node on the one or more hierarchical tree structures to ascertain a device location," as recited in Claim 2.

The references fail to provide any motivation for combining the presentation teachings provided by Goldman with Dowling to render obvious Claim 2, which recites a method for determining a location of a portable device by accessing one or more hierarchical tree structures each of which comprising multiple nodes that represent physical or logical locations and traversing at least one node on the one or more hierarchical tree structures to ascertain a device location. As such, Appellant submits that the Office has failed to establish a *prima facie* case of obviousness and the rejection of Claim 2 should be reversed.

Claims 3-7 and 9-19 depend from Claim 2 either directly or indirectly and are distinguishable over the proposed combination of Dowling and Goldman for at least the reasons set forth above regarding Claim 2.

b. Claim 20 recites a method of operating a portable computing device comprising:

- determining a location of the portable computing device by accessing one or more hierarchical tree structures comprising

multiple nodes that represent physical or logical locations; and traversing at least one node on the one or more hierarchical tree structures to ascertain a device location;

- acquiring one or more applets associated with the determined location; and
- locally executing the one or more applets sufficient to interact with a location environment.

Similar to the rejection of Claim 2 discussed above as item a), the final rejection of Claim 20 asserts that Dowling discloses the subject matter of the claim, except that "Dowling does not disclose that these databases are hierarchical tree structures, wherein nodes would be traversed to access the information concerning the device location..." (Office Action, page 6). The rejection further asserts that Goldman discloses "creating and using an organized hierarchical structure with nodes representing location based information, wherein the tree would be traversed to access a specific node containing information that is needed." Thus, the rejection surmises that it would be obvious to incorporate Goldman's teaching in Dowling's system to render the claimed subject matter obvious since Dowling discloses using "some kind of database storage structure" (Office Action, page 6) and that Goldman teaches taking a database and using a hierarchical structure to provide a better organized structure where information can be easily accessed.

The Appellant respectfully disagrees with the interpretation and application of the references set forth in the rejection, and further submits that the rejection fails to establish a *prima facie* case of obviousness. More specifically,

it is respectfully submitted that the rejection does not provide adequate suggestion or motivation to modify the reference or to combine reference teachings, and, further, the references do not teach or suggest all of the claim features.

First, Goldman is concerned with providing a meaningful and easy way to access information in an information repository, *i.e.*, a database, that provides the detail of information available from a custom program without the time and expense of creating one, as well as the cost-effectiveness of querying an information repository without the uncertainties of results and the inefficiencies in obtaining them (Goldman, col. 2, lines 41-50). Thus, Goldman is directed to using an information model to create a hierarchy that allows a user to *see* two things. Specifically, the user can *see* how information in an information repository is organized and various information relationships, *e.g.*, relationships between data such as database fields and records in the database. Further, Goldman's database-derived hierarchy allows a user to *view* logical subsets of database records. Goldman's description and usage of "hierarchy" is not even suggestive of "hierarchical tree structures comprising multiple nodes that represent physical or logical location" as recited in Claim 20.

Secondly, Goldman fails to teach or suggest determining a "location" of a device or using a hierarchical tree structure to determine location of a device, as recited in Claim 20. Rather, Goldman is directed to systems and methods that process information associated with a database so that the information can be presented for viewing by a user using the device (Goldman, col. 1, lines 10-12).

The references fail to provide any motivation for combining the presentation teachings provided by Goldman with Dowling to render obvious Claim 20, which recites a method for determining a location of a portable device by accessing one or more hierarchical tree structures each of which comprising multiple nodes that represent physical or logical locations and traversing at least one node on the one or more hierarchical tree structures to ascertain a device location. As such, Appellant submits that the Office has failed to establish a *prima facie* case of obviousness and the rejection of Claim 20 should be reversed.

Claims 21-30 depend either directly or indirectly from Claim 20 and are distinguishable over the proposed combination of references for at least the same reasons set forth above regarding Claim 20.

Furthermore, in view of the lack of a *prima facie* case of obviousness with regard to Claim 20, it is further submitted that the additional teachings of Fulton are unable to render obvious Claim 22, which depends from Claim 20.

c. Claim 32 recites one or more computer-readable media having computer-readable instructions thereon which, when executed by a portable computer device, cause the computing device to:

- determine its location by accessing one or more hierarchical tree structures each of which comprising multiple nodes that represent physical or logical locations, and traversing at least one node on the one or more hierarchical tree structures to ascertain a device location;

- generate a service query that is configured to identify services that are associated with the location;
- wirelessly send the query to one or more servers;
- receive a response from the one or more servers that contains digital data associated with applets that can be executed by the device and that provide a location-specific service; and
- locally execute the one or more applets to interact with a location environment.

The final rejection of Claim 32 asserts that Dowling discloses the subject matter of the claim, except that "Dowling does not disclose that these databases are hierarchical tree structures, wherein nodes would be traversed to access the information concerning the device location..." (Office Action, page 8). The rejection then argues that Goldman discloses "creating and using an organized hierarchical structure with nodes representing location based information, wherein the tree would be traversed to access a specific node containing information that is needed." Thus, the rejection asserts that Goldman's teaching combined with Dowling's system would render the claimed subject matter obvious since Dowling discloses using "some kind of database storage structure" (Office Action, pages 8 and 9) and that Goldman teaches taking a database and using a hierarchical structure to provide a better organized structure where information can be easily accessed.

Again, the Appellant respectfully disagrees with the interpretation and application of the references set forth in the rejection, and further submits that the rejection fails to establish a *prima facie* case of obviousness. More specifically,

it is respectfully submitted that the rejection does not provide adequate suggestion or motivation to modify the reference or to combine reference teachings, and, further, the references do not teach or suggest all of the claim features.

In particular, Goldman accesses information in an information repository, *i.e.*, a database, that provides the detail of information available from a custom program without the time and expense of creating one, as well as the cost-effectiveness of querying an information repository without the uncertainties of results and the inefficiencies in obtaining them (Goldman, col. 2, lines 41-50). Thus, Goldman is directed to using an information model to create a hierarchy that allows a user to *see* how information in an information repository is organized and various information relationships between data such as database fields and records in the database, allows a user to *view* logical subsets of database records. Thus, Goldman's reference to a "hierarchy" is not even suggestive of "one or more hierarchical tree structures each of which comprising multiple nodes that represent physical or logical locations," as recited in Claim 32.

Secondly, Goldman fails to teach or suggest determining a "location" of a device or using a hierarchical tree structure to determine location of a device, as recited in Claim 32. Rather, Goldman is directed to systems and methods that process information associated with a database so that the information can be presented for viewing by a user using the device (Goldman, col. 1, lines 10-12). Thus, Goldman fails to teach or suggest "traversing at least one node on the one

or more hierarchical tree structures to ascertain a device location," as recited in Claim 32.

The references fail to provide any motivation for combining the presentation teachings provided by Goldman with Dowling to render obvious Claim 32, in which one or more computer-readable media cause a computing device to determine a location of a portable device by accessing one or more hierarchical tree structures each of which comprising multiple nodes that represent physical or logical locations and traverse at least one node on the one or more hierarchical tree structures to ascertain a device location. As such, Appellant submits that the final rejection fails to establish a *prima facie* case of obviousness and the rejection of Claim 32 should be reversed.

Claims 33-36, 38, and 39 depend either directly or indirectly from Claim 32 and are distinguishable over the proposed combination of references for at least the same reasons set forth above regarding Claim 32.

Furthermore, in view of the lack of a *prima facie* case of obviousness with regard to Claim 32, it is further submitted that the additional teachings of Fulton are unable to render obvious Claim 37, which depends from Claim 32.

d. Claim 41 recites a computer architecture comprising:

- a location service module configured to wirelessly receive location information and ascertain a location associated with the location information by accessing one or more hierarchical tree structures each of which comprising multiple nodes that represent physical or

logical locations and traversing at least one node on the one or more hierarchical tree structures to ascertain a device location; and

- an applet manager operably associated with the location service module and configured to receive and manage applets that can be wirelessly received and that pertain to a location that is ascertained by the location service module, the applets being configured to enable a user of a computer device to interact with a location environment.

The final rejection of Claim 41 asserts that Dowling discloses the subject matter of the claim, except that "Dowling does not disclose that these databases are hierarchical tree structures, wherein nodes would be traversed to access the information concerning the device location..." (Office Action, page 10). The rejection then argues that Goldman discloses "creating and using an organized hierarchical structure with nodes representing location based information, wherein the tree would be traversed to access a specific node containing information that is needed." Thus, the rejection asserts that Goldman's teaching combined with Dowling's system would render the claimed subject matter obvious since Dowling discloses using "some kind of database storage structure" (Office Action, pages 10 and 11) and that Goldman teaches taking a database and using a hierarchical structure to provide a better organized structure where information can be easily accessed.

Again, the Appellant respectfully disagrees with the interpretation and application of the references set forth in the rejection, and further submits that the rejection fails to establish a *prima facie* case of obviousness. More specifically,

it is respectfully submitted that the rejection does not provide adequate suggestion or motivation to modify the reference or to combine reference teachings, and, further, the references do not teach or suggest all of the claim features.

In particular, Goldman accesses information in an information repository, *i.e.*, a database, that provides the detail of information available from a custom program without the time and expense of creating one, as well as the cost-effectiveness of querying an information repository without the uncertainties of results and the inefficiencies in obtaining them (Goldman, col. 2, lines 41-50). Thus, Goldman is directed to using an information model to create a hierarchy that allows a user to *see* how information in an information repository is organized and various information relationships between data such as database fields and records in the database, allows a user to *view* logical subsets of database records. Thus, Goldman's reference to a "hierarchy" is not even suggestive of the "location service module configured to wirelessly receive location information and ascertain a location associated with the location information by accessing one or more hierarchical tree structures each of which comprising multiple nodes that represent physical or logical locations," as recited in Claim 41.

Secondly, Goldman fails to teach or suggest determining a "location" of a device or using a hierarchical tree structure to determine location of a device, as recited in Claim 41. Rather, Goldman is directed to systems and methods that process information associated with a database so that the information can be presented for viewing by a user using the device (Goldman, col. 1, lines 10-12).

Thus, Goldman fails to teach or suggest the location service module that further traverses "at least one node on the one or more hierarchical tree structures to ascertain a device location," as recited in Claim 41.

The references fail to provide any motivation for combining the presentation teachings provided by Goldman with Dowling to render obvious the computer architecture of Claim 41, in which a location service module determines a location of a portable device by accessing one or more hierarchical tree structures each of which comprising multiple nodes that represent physical or logical locations and traverses at least one node on the one or more hierarchical tree structures to ascertain a device location. As such, Appellant submits that the final rejection fails to establish a *prima facie* case of obviousness and the rejection of Claim 41 should be reversed.

Claims 42-46 depend from Claim 41, and are therefore distinguishable over the proposed combination of references for at least the reasons set forth above regarding Claim 41.

e. **Claim 48** recites a handheld computing device comprising:

- a location service module configured to receive location information and ascertain a location associated with the location information by accessing one or more hierarchical tree structures each of which comprising multiple nodes that represent physical or logical locations, and traversing at least one node on the one or more hierarchical tree structures to ascertain a device location;

- an applet manager operably associated with the location service module and configured to receive and manage applets that can be wirelessly received and that pertain to a location that is ascertained by the location service module;
- an applet runtime environment in which applets that are received can execute to enable a user of the device to interact with a location environment;
- an applet cache in which applets can be cached for use in connection with an ascertained location; and
- a network component configured to establish wireless communication with a network so that applets can be wirelessly received.

The final rejection of Claim 48 asserts that Dowling discloses the subject matter of the claim, except that "Dowling does not disclose that these databases are hierarchical tree structures, wherein nodes would be traversed to access the information concerning the device location..." (Office Action, page 12). The rejection then argues that Goldman discloses "creating and using an organized hierarchical structure with nodes representing location based information, wherein the tree would be traversed to access a specific node containing information that is needed." Thus, the rejection asserts that Goldman's teaching combined with Dowling's system would render the claimed subject matter obvious since Dowling discloses using "some kind of database storage structure" (Office Action, pages 12) and that Goldman teaches taking a database and using

a hierarchical structure to provide a better organized structure where information can be easily accessed.

Again, the Appellant respectfully disagrees with the interpretation and application of the references set forth in the rejection, and further submits that the rejection fails to establish a *prima facie* case of obviousness. More specifically, it is respectfully submitted that the rejection does not provide adequate suggestion or motivation to modify the reference or to combine reference teachings, and, further, the references do not teach or suggest all of the claim features.

In particular, Goldman accesses information in an information repository, *i.e.*, a database, that provides the detail of information available from a custom program without the time and expense of creating one, as well as the cost-effectiveness of querying an information repository without the uncertainties of results and the inefficiencies in obtaining them (Goldman, col. 2, lines 41-50). Thus, Goldman is directed to using an information model to create a hierarchy that allows a user to *see* how information in an information repository is organized and various information relationships between data such as database fields and records in the database, allows a user to *view* logical subsets of database records. Thus, Goldman's reference to a "hierarchy" is not even suggestive of the "location service module configured to wirelessly receive location information and ascertain a location associated with the location information by accessing one or more hierarchical tree structures each of which comprising multiple nodes that represent physical or logical locations," as recited in Claim 48.

Secondly, Goldman fails to teach or suggest determining a "location" of a device or using a hierarchical tree structure to determine location of a device, as recited in Claim 48. Rather, Goldman is directed to systems and methods that process information associated with a database so that the information can be presented for viewing by a user using the device (Goldman, col. 1, lines 10-12). Thus, Goldman fails to teach or suggest the location service module that further traverses "at least one node on the one or more hierarchical tree structures to ascertain a device location," as recited in Claim 48.

The references fail to provide any motivation for combining the presentation teachings provided by Goldman with Dowling to render obvious the computer architecture of Claim 48, in which a location service module determines a location of a portable device by accessing one or more hierarchical tree structures each of which comprising multiple nodes that represent physical or logical locations and traverses at least one node on the one or more hierarchical tree structures to ascertain a device location. As such, Appellant submits that the final rejection fails to establish a *prima facie* case of obviousness and the rejection of Claim 48 should be reversed.

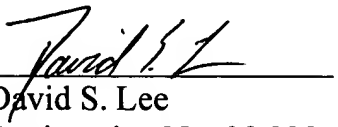
CONCLUSION

For at least the reasons provided above, it is respectfully submitted that the rejections set forth in the Final Office Action of January 28, 2004, in connection with the subject application should be reversed.

Favorable consideration of this Brief is respectfully requested.

Respectfully submitted,

LEE& HAYES, pllc



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APPENDIX OF CLAIMS ON APPEAL

2. A method of operating a portable computing device comprising:

determining a location of the portable computing device by accessing one or more hierarchical tree structures each of which comprising multiple nodes that represent physical or logical locations; and traversing at least one node on the one or more hierarchical tree structures to ascertain a device location;

acquiring digital data associated with the determined location and that can permit the portable computing device to interact with a location environment; and

interacting with the location environment based, at least in part, on the acquired digital data.

3. The method of claim 2, wherein said accessing comprises locally accessing said one or more hierarchical tree structures.

4. The method of claim 2, wherein said accessing comprises accessing said one or more hierarchical tree structures from a source that is remote from the device.

5. The method of claim 2, wherein said accessing comprises wirelessly accessing said one or more hierarchical tree structures.

6. The method of claim 2, wherein said determining comprises receiving location information from multiple different location providers and, based on the location information, determining the location.

7. The method of claim 2, wherein said determining comprises wirelessly receiving location information from multiple different location providers and, based on the location information, performing said acts of accessing and traversing.

9. The method of claim 2, wherein the digital data comprises data that is used to render a Web page.

10. The method of claim 9, wherein said interacting comprises interacting with the Web page.

11. The method of claim 2, wherein the digital data comprises code download pointers that reference software code that can be wirelessly downloaded on the device.

12. The method of claim 11, wherein said interacting comprises:

using the code download pointers to access and load the software code on the device; and

executing the software code on the device.

13. The method of claim 11, wherein said interacting comprises:

using the code download pointers to access and load the software code on the device; and

executing the software code in a runtime environment on the device.

14. The method of claim 2, wherein the digital data comprises one or more applets that can be executed on the device.

15. The method of claim 14, wherein said interacting comprises locally executing the one or more applets.

16. The method of claim 2, wherein said acquiring comprises wirelessly acquiring the digital data via the Internet.

17. A portable computing device programmed with instructions that implement the method of claim 2.

18. A handheld portable computing device programmed with instructions that implement the method of claim 2.

19. One or more computer-readable media having computer-readable instructions thereon which, when executed by a computer, implement the method of claim 2.

20. A method of operating a portable computing device comprising:

determining a location of the portable computing device by accessing one or more hierarchical tree structures comprising multiple nodes that represent physical or logical locations; and traversing at least one node on the one or more hierarchical tree structures to ascertain a device location;

acquiring one or more applets associated with the determined location; and

locally executing the one or more applets sufficient to interact with a location environment.

21. The method of claim 20 further comprising maintaining an applet cache in which applets can be cached for use on the device.

22. The method of claim 21 further comprising removing one or more applets when a device location changes such the one or more applets are no longer needed.

23. The method of claim 20, wherein said acquiring comprises generating a query that is configured to identify one or more applets that are associated with the location.

24. The method of claim 20, wherein said acquiring comprises querying a server to ascertain one or more applets that are associated with the location and that provide a location-specific service.

25. The method of claim 24 further comprising receiving a response from the server that contains digital data associated with services that are provided for that location.

26. The method of claim 25, wherein the digital data comprises one or more URLs that are associated with applets that can be executed for that location.

27. The method of claim 25, wherein the digital data comprises one or more applets that can be executed for that location.

28. A portable computing device programmed with instructions that implement the method of claim 20.

29. A handheld computing device programmed with instructions that implement the method of claim 20.

30. One or more computer-readable media having computer-readable instructions thereon which, when executed by a computer, implement the method of claim 20.

32. One or more computer-readable media having computer-readable instructions thereon which, when executed by a portable computer device, cause the computing device to:

determine its location by accessing one or more hierarchical tree structures each of which comprising multiple nodes that represent physical or logical locations, and traversing at least one node on the one or more hierarchical tree structures to ascertain a device location;

generate a service query that is configured to identify services that are associated with the location;

wirelessly send the query to one or more servers;

receive a response from the one or more servers that contains digital data associated with applets that can be executed by the device and that provide a location-specific service; and

locally execute the one or more applets to interact with a location environment.

33. The computer-readable media of claim 32, wherein the instructions cause the portable computing device to determine its location by:

receiving location information from multiple different location providers, the location information pertaining to a current location; and

accessing said one or more hierarchical tree structures each of which comprising multiple nodes that represent physical or logical locations; and

traversing at least one node on the one or more hierarchical tree structures, based at least in part on the location information, to ascertain a device location.

34. The computer-readable media of claim 32, wherein the response comprises one or more URLs associated with applets that can be executed by the

device, and further comprising using the URLs to wirelessly access one or more associated applets.

35. The computer-readable media of claim 32, wherein the instructions cause the portable computing device to:

receive one or more digitally signed applets; and

authenticate the one or more applets prior to executing them on the device.

36. The computer-readable media of claim 32, wherein the instructions cause the portable computing device to maintain an applet cache in which applets can be cached for future use on the device.

37. The computer-readable media of claim 36, wherein the instructions cause the portable computing device to remove one or more applets from the applet cache when a device location changes such that the one or more applets are no longer needed.

38. A portable computing device embodying the computer-readable media of claim 32.

39. A handheld computing device embodying the computer-readable media of claim 32.

41. A computer architecture comprising:

a location service module configured to wirelessly receive location information and ascertain a location associated with the location information by accessing one or more hierarchical tree structures each of which comprising multiple nodes that represent physical or logical locations and traversing at least one node on the one or more hierarchical tree structures to ascertain a device location; and

an applet manager operably associated with the location service module and configured to receive and manage applets that can be wirelessly received and that pertain to a location that is ascertained by the location service module, the applets being configured to enable a user of a computer device to interact with a location environment.

42. The computer architecture of claim 41 further comprising an applet runtime environment in which one or more wirelessly received applets can execute.

43. The computer architecture of claim 41 further comprising an applet cache in which applets can be cached for use in connection with an ascertained location.

44. The computer architecture of claim 41 further comprising a network component configured to establish wireless communication with a network so that applets can be wirelessly received.

45. A portable computing device embodying the computer architecture of claim 41.

46. A handheld computing device embodying the computer architecture of claim 41.

48. A handheld computing device comprising:

a location service module configured to receive location information and ascertain a location associated with the location information by accessing one or more hierarchical tree structures each of which comprising multiple nodes that represent physical or logical locations, and traversing at least one node on the one or more hierarchical tree structures to ascertain a device location;

an applet manager operably associated with the location service module and configured to receive and manage applets that can be wirelessly received and that pertain to a location that is ascertained by the location service module;

an applet runtime environment in which applets that are received can execute to enable a user of the device to interact with a location environment;

an applet cache in which applets can be cached for use in connection with an ascertained location; and

a network component configured to establish wireless communication with a network so that applets can be wirelessly received.